

REMARKS

Claims 26-29, 31-36, 39-42 and 44-49 are pending in the subject application. Applicant has amended claims 26 and 33, canceled claims 37-38 and added new claims 48-49. Support for new claims 48-49 can be found, for example, in paragraph [0046] of the present application. No new matter has been added to the application by virtue of the present amendment.

Applicant's agent, Anthony J. Canale, wishes to express his appreciation to Examiner Nadav for the Examiner interview conducted on Tuesday November 13, 2007.

Election / Restrictions

The Examiner stated that claims 35-38 should be withdrawn as being drawn to a non-elected embodiment. Applicant notes that the restriction requirement filed on October 1, 2003 did **not** require election of any embodiments for claims 26-38. Applicant has canceled claims 37-38. Applicant respectfully submits that claim 26, as amended, reads on the embodiments of Figures 1-4 and 6-7 and claims 35-36 read on the embodiment of Figure 4, thus, claim 26, as amended, and claims 35-36 read on the embodiment of Figure 4. Claim 26, as amended, is generic to claims 35-36 since all three claims are supported by Figure 4.

Therefore, Applicant believes that it is proper for claims 35-36 to remain in the present application.

Claim Objections

The Examiner has objected to claims 26-29, 31-42 and 44-47 due to informalities. Applicant has made appropriate correction to claim 26 as recommended by the Examiner.

Therefore, Applicant believes the objections to the claims have been overcome.

Claim Rejections – 35 U.S.C. 103(a)

The Examiner has rejected claims 26-29, 31-32, 39-42 and 44-47 under 35 U.S.C. 103(a) as being unpatentable over Xu (U.S. Patent No. 6,437,383) in view of Hargrove et al. (U.S. Patent No. 5,731,941); claims 33,35 and 37-38 under 35 U.S.C. 103(a) as being unpatentable over Xu and Hargrove, as applied to claim 26 above, and further in view of Chen (U.S. Patent No. 6,242,763); and, claims 34 and 36 under 35 U.S.C. 103(a) as being unpatentable over Xu, Hargrove and Chen, as applied to claims 33 and 35 above, and further in view of Robinson et al. (U.S. Patent No. 5,268,316).

Applicant has amended independent claim 26 to recite the limitations of “...each of said plurality of isolation structures disposed between and in direct contact with at least a portion of said anode and respective said adjacent ones of said plurality of isolation regions” Support for Applicant’s amendment can be found, for example, referring to FIGS. 1-4 (and related text) of the present application which discloses forming isolation structures 18, 18A (e.g. shallow trench isolation) in original substrate 10, each of the isolation structures 18, 18A are **disposed between and in direct contact with** at least a portion of anode 20 **and** respective adjacent isolation regions 16 (e.g. deep trench isolation) (emphasis added).

The Examiner explicitly states on page 3 of the Final Office Action of October 4, 2007 that “... Xu does not teach forming a plurality of isolation structures in said original substrate, wherein each of said plurality of isolation structures disposed between at least a portion of said anode and respective said adjacent ones of said plurality of isolation regions ...”.

Applicant respectfully submits that Hargrove, Chen and Robinson each fail to rectify the deficiencies in Xu.

Hargrove discloses in FIG. 4 that P+ anode 36 is formed between and in direct contact with STI and trench capacitor 30. Hargrove requires the P+ anode 36 to be in direct contact with

trench capacitor 30 in order to form the PFET device as well as to establish an electrical connection between the PFET and Vdd.

Chen discloses a plurality of isolation regions 204A, 204B (see FIG. 2) which bound an SCR device, however, Chen is silent on a plurality of isolation structures disposed between and in direct contact with at least a portion of the Anode and respective adjacent ones of the plurality of isolation regions 204A, 204B.

Robinson discloses (see FIG. 7) a Schottky diode 4 comprising a metal electrode 58/59 formed on a surface of a substrate over an NWell region 6 and Pt silicide diode junction 7. Robinson discloses metal electrode 58/59 which is **not** in direct contact with field oxide region 34 or surface spacer 8, rather, metal electrode 58/59 is in direct contact with oxide layers 40, 48. Robinson also discloses that isolation oxide region 27 is formed on **only one side** of NWell region 6. Isolation oxide region 27 is formed adjacent to only one side (i.e. right side in FIG. 7) of NWell region 6 while on the other side (i.e. left side in FIG. 7) of NWell region 6, surface spacer 8 is formed **not** in direct contact with metal electrode 58/59 **nor** another respective isolation oxide region 27. Thus, Applicant respectfully submits that Robinson does not disclose, teach or suggest Applicant's claim limitation of "... **each** of said plurality of isolation structures **disposed between** and **in direct contact with at least a portion of said anode and respective said adjacent ones of said plurality of isolation regions ...**"

Regarding claim 33, Applicant has amended claim 33 to include the limitations of "... wherein a side of said third doped region is in direct contact with only said first doped region and another side of said third doped region is in direct contact with only said second doped region." Support for Applicant's amendment can be found, for example, with reference to Figure 2 and paragraphs [0040 – 0041] of the present application. The Examiner explicitly states that Xu and Hargrove do not teach a third doped region disposed between a first doped region and a second doped region. Applicant respectfully submits that Chen fails to remedy the deficiencies in Xu and Hargrove. Chen discloses a doped P+ region 211 which abuts two **differently** doped N regions 206, 210 on two sides. Thus, Chen does not disclose, teach or suggest Applicant's claim 33, as amended.

Therefore, Applicant believes the rejections to the claims under 35 U.S.C. 103(a) have been overcome.

CONCLUSION

In light of the foregoing amendments and remarks, all of the claims now presented are believed to be in condition for allowance, and Applicant respectfully requests that the outstanding rejections be withdrawn and this application be passed to issue at an early date.

The Examiner is urged to call the undersigned at the number listed below if, in the Examiner's opinion, such a phone conference would aid in furthering the prosecution of this application. No fees are due by virtue of this amendment, however, if the Office determines that any fees are not accounted for, please charge Applicant's Deposit Account, 09-0456.

Respectfully Submitted,

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